FIG. 1
Related Art

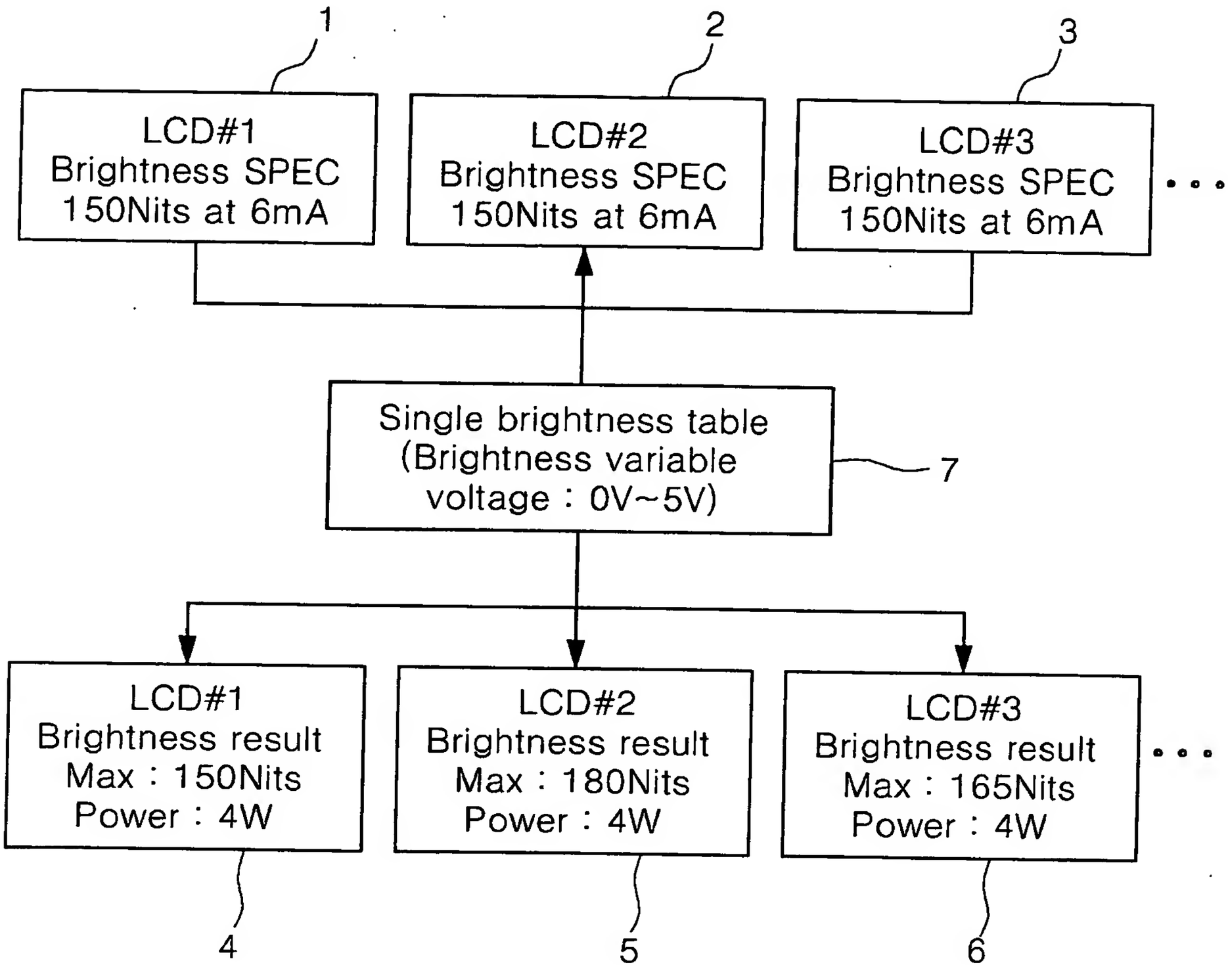


FIG. 2

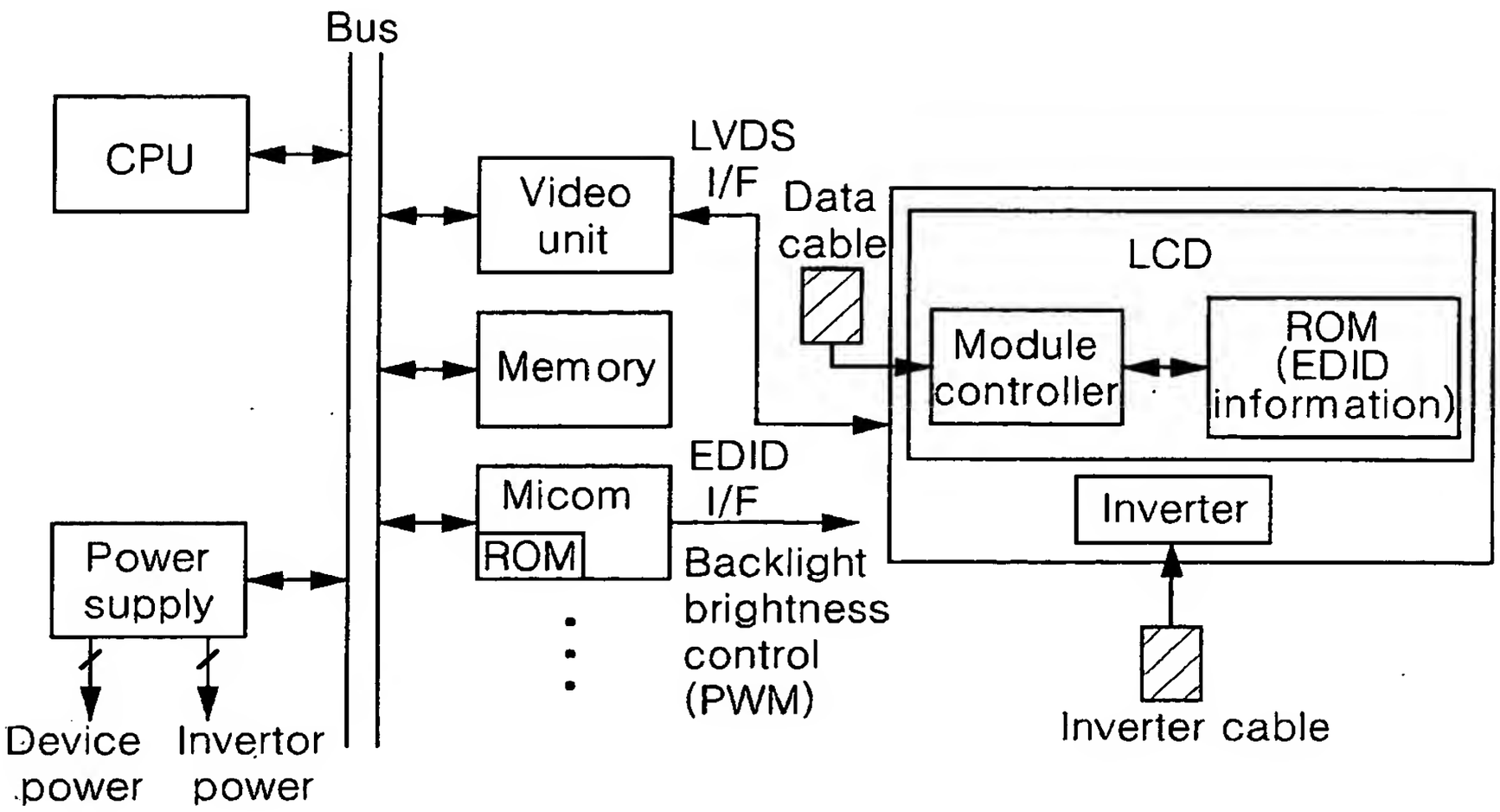

Bus
CPU
LVDS
I/F
Video
unit
Data
cable
LCD
Module
controller
ROM
(EDID
information)
Memory
EDID
I/F
Micom
ROM
Inverter
Power
supply
Backlight
brightness
control
(PWM)
Device
power
Invertor
power
Inverter cable

FIG. 3

Address	No. bytes		Description	Format
00h	1	Bytes	EDID Structure Version/Revision	Binary
01h	7	Bytes	Vendor/Product Identification	
01h		2	ID Manufacturer Name	EISA 3-character ID
03h		2	ID Product Code	Vendor assigned code
05h		1	Week of Manufacture	Week number
06h		2	Year of Manufacture	Binary
4Fh	5	Bytes	Display Device Description	
4Fh		1	Display Technology Type/Subtype	
50h		1	Major Display Characteristics	
56h	28	Bytes	Color/Luminance Description	
56h		4	Display Transfer Characteristic (Gamma)	Binary
80h	127	Bytes	Luminance Table & Timing Descriptions	
*		x*A	Luminance Table	Size x specified in Section 4.4
*		8*B	Range Limits	
*		27*C	27-Byte-Detailed Range Limits	
*		4*D	4-Byte Timing Codes	
*		18*E	18-Byte Detailed Timing Descriptions	
*		X	X=127-(x*A+8*B+27 *C+4*D+18*D)	Set to 00h

FIG. 4

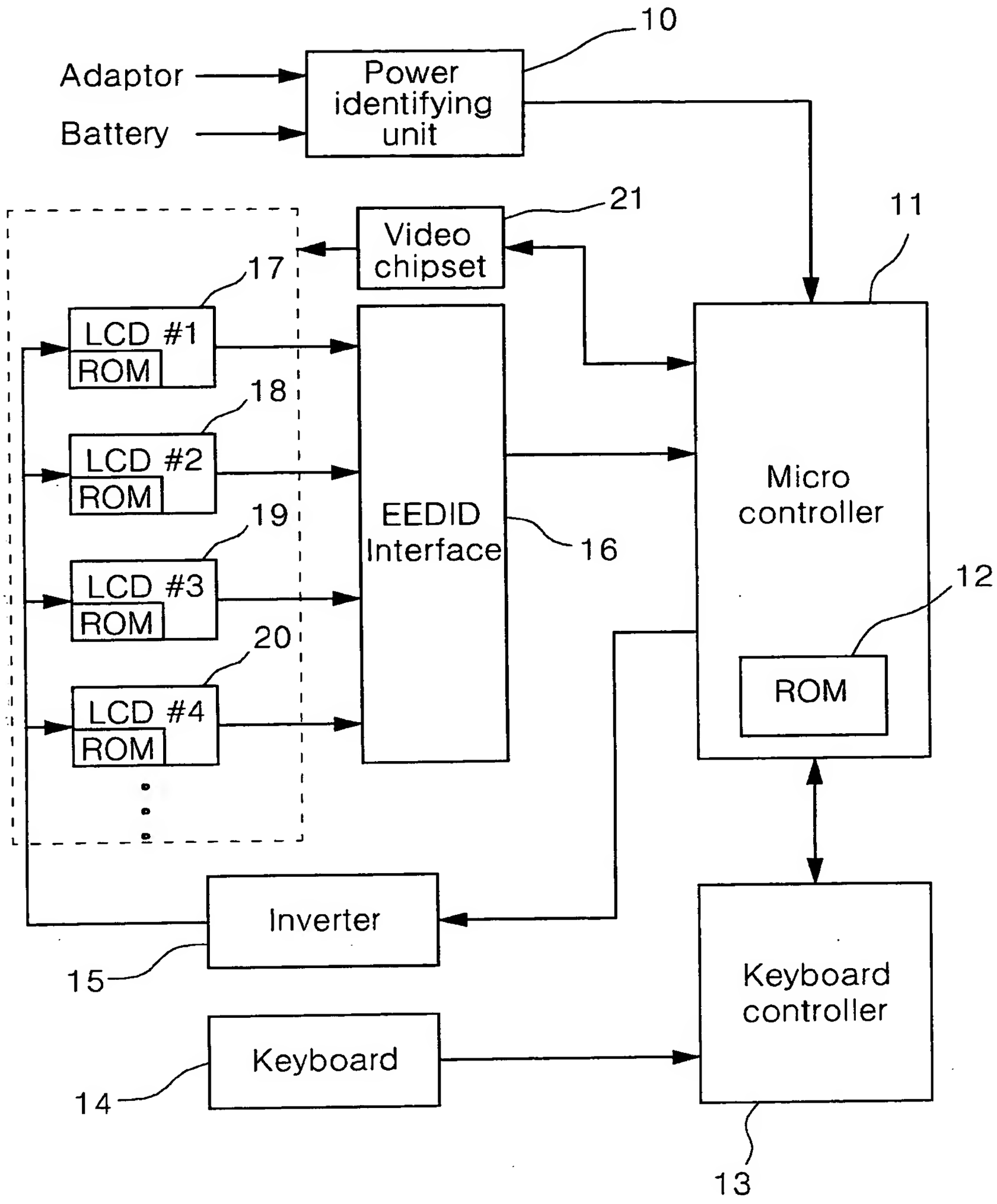

10
Adaptor
Battery
Power identifying unit
21
11
Video chipset
17
LCD #1
ROM
18
LCD #2
ROM
19
LCD #3
ROM
20
LCD #4
ROM
EEDID Interface
16
Micro controller
12
ROM
Inverter
15
Keyboard
14
Keyboard controller
13

FIG. 5

Kind of LCD	LCD brightness control value	Control code
LCD #1	Control value for output of 6 mA	0B
LCD #2	Control value for output of 5 mA	1A
LCD #3	Control value for output of 5.5 mA	47
LCD #4	Control value for output of 4.5 mA	15
⋮	⋮	⋮

FIG. 6

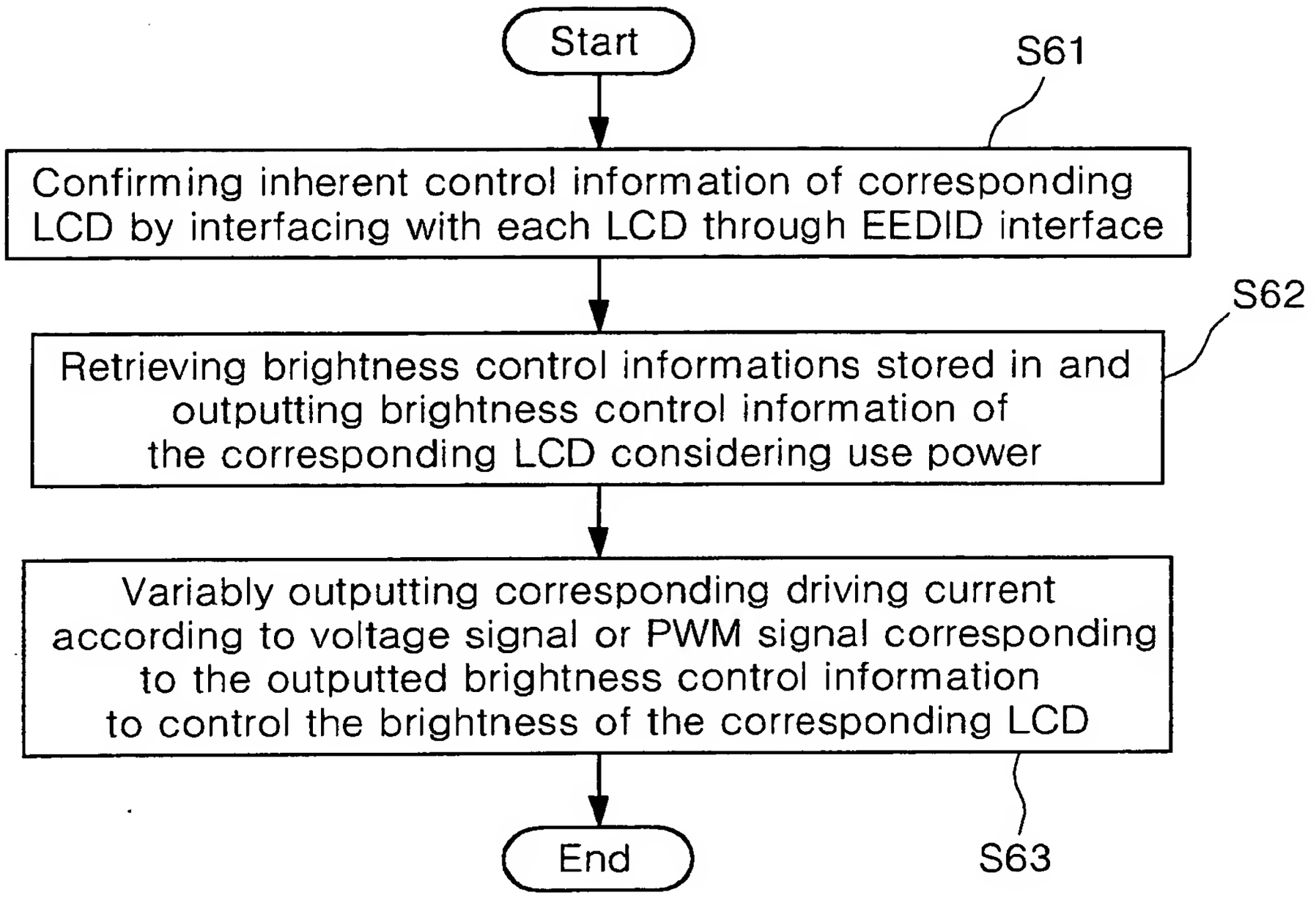

Start
S61
Confirming inherent control information of corresponding LCD by interfacing with each LCD through EEDID interface
S62
Retrieving brightness control informations stored in and outputting brightness control information of the corresponding LCD considering use power
Variably outputting corresponding driving current according to voltage signal or PWM signal corresponding to the outputted brightness control information to control the brightness of the corresponding LCD
End
S63

FIG. 7

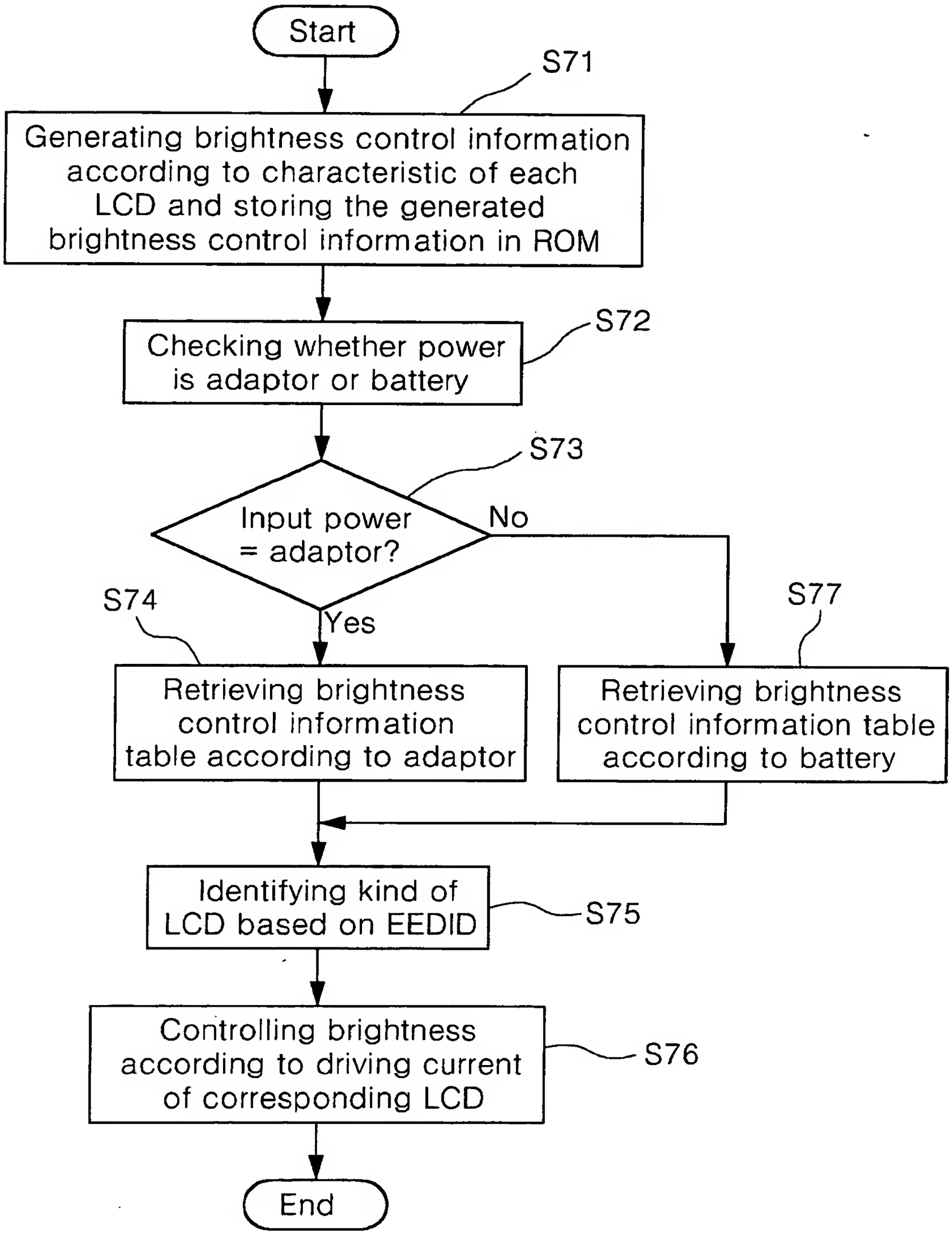

Start
S71
Generating brightness control information according to characteristic of each LCD and storing the generated brightness control information in ROM
S72
Checking whether power is adaptor or battery
S73
Input power = adaptor?
No
Yes
S74
Retrieving brightness control information table according to adaptor
S77
Retrieving brightness control information table according to battery
Identifying kind of LCD based on EEDID
S75
Controlling brightness according to driving current of corresponding LCD
S76
End

FIG. 8

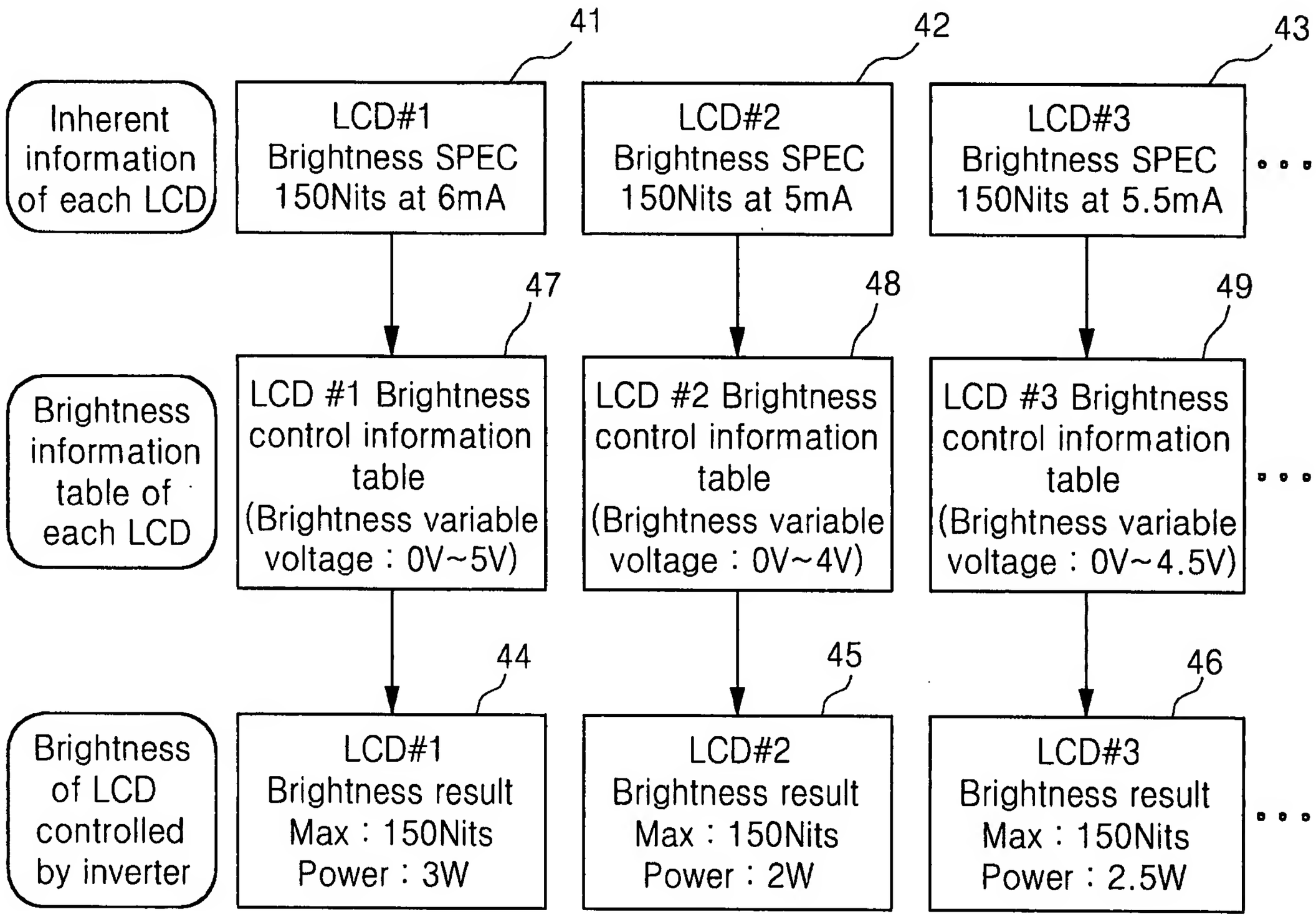

Inherent information of each LCD
41
LCD#1 Brightness SPEC 150Nits at 6mA
42
LCD#2 Brightness SPEC 150Nits at 5mA
43
LCD#3 Brightness SPEC 150Nits at 5.5mA
Brightness information table of each LCD
47
LCD #1 Brightness control information table (Brightness variable voltage : 0V~5V)
48
LCD #2 Brightness control information table (Brightness variable voltage : 0V~4V)
49
LCD #3 Brightness control information table (Brightness variable voltage : 0V~4.5V)
Brightness of LCD controlled by inverter
44
LCD#1 Brightness result Max : 150Nits Power : 3W
45
LCD#2 Brightness result Max : 150Nits Power : 2W
46
LCD#3 Brightness result Max : 150Nits Power : 2.5W

FIG. 9

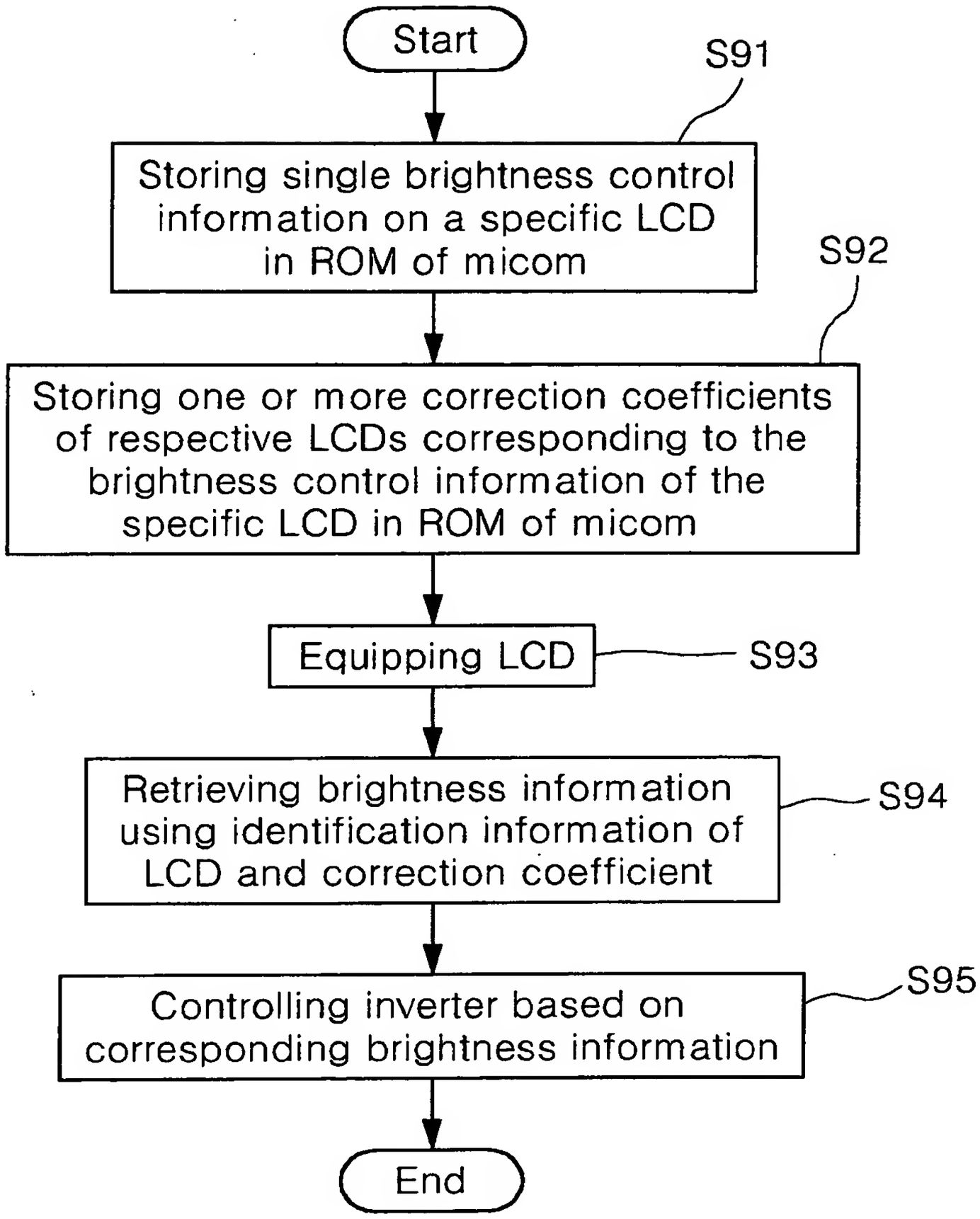

Start
S91
Storing single brightness control information on a specific LCD in ROM of micom
S92
Storing one or more correction coefficients of respective LCDs corresponding to the brightness control information of the specific LCD in ROM of micom
Equipping LCD
S93
Retrieving brightness information using identification information of LCD and correction coefficient
S94
Controlling inverter based on corresponding brightness information
S95
End

FIG. 10

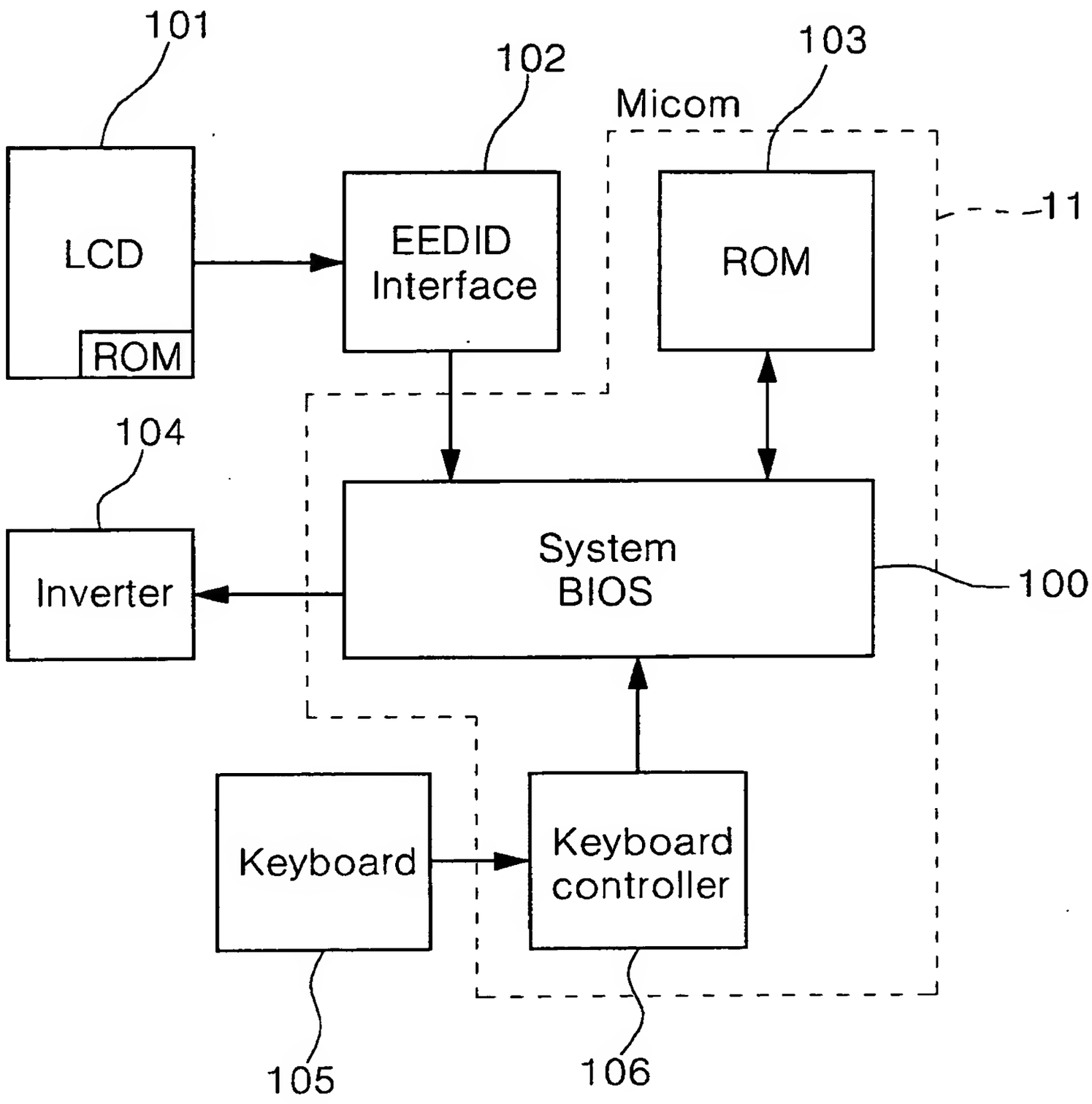
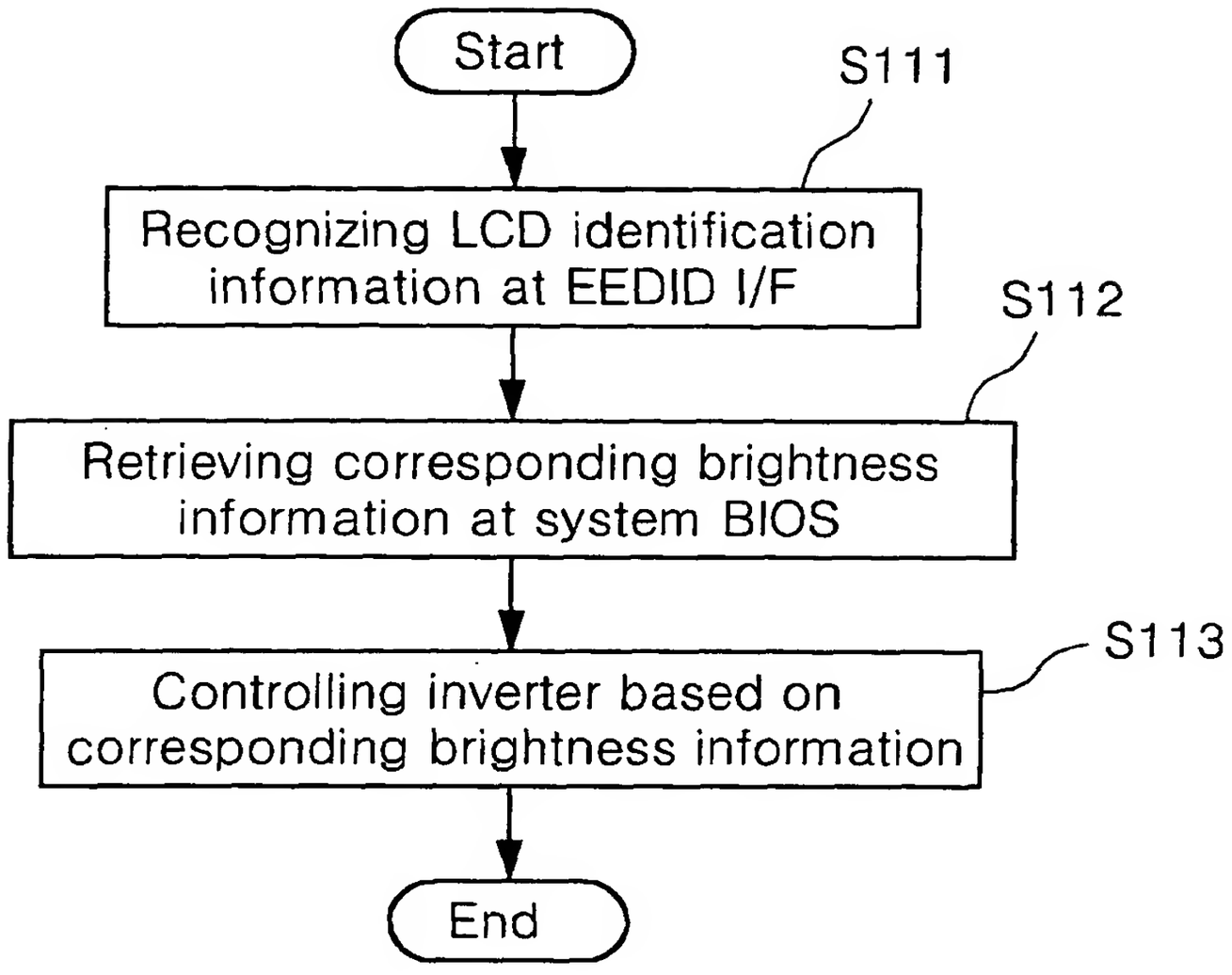

101
102
103
Micom
LCD
ROM
EEDID
Interface
ROM
11
104
Inverter
System
BIOS
100
Keyboard
Keyboard
controller
105
106

FIG. 11


Start
S111
Recognizing LCD identification information at EEDID I/F
S112
Retrieving corresponding brightness information at system BIOS
S113
Controlling inverter based on corresponding brightness information
End